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Take precautions against heavy metals in the soil

Q: I read about arsenic levels in soil in South King County, and I wonder about what I should do in my garden?

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A: People in general aren't likely to be made sick by casual exposure to soil containing heavy metals at small concentrations. But variations in sensitivity exist throughout the population, and many people have immune-system challenges.

Preschool-age children tend to be the most vulnerable to heavy metals because they play close to soil, put their hands in their mouths frequently and may absorb greater amounts of lead or arsenic than do adults.

Some heavy metals such as lead and arsenic are present in natural, undisturbed soils. Sources of pollution exist, and the problem is certainly not confined to South King County and North Pierce County.

Pesticides can be a source. Old apple orchards can contain soil contaminated by the use of lead arsenate as an insecticide. This practice, prohibited in Washington since 1947, left soils in many former agricultural areas in Washington with high heavy-metal levels.

If your home has been built over what was once a commercial orchard, there may be potential for heavy metals on site.

Lead paints are another source. My garden is planted around a house built in 1904. Old paints, estimated to be found on 90 percent of houses built before 1940, can be a major source of lead as they flake off and chip into garden soils.

How can a gardener minimize risk? Heavy metals are termed "heavy" in part because they tend to stay where they have been deposited. This characteristic helps in managing the problem.

Here are ways you can reduce your exposure to contaminated soil in your garden:

- **Build containers or raised beds** filled with "new" soil where you intend to grow food crops. If the soil below has been tested and found contaminated, don't put in permanent edible crops that might grow roots down into the contaminated soil. A barrier such as a plastic layer can prevent root growth, but it's necessary to provide for bed drainage if you use any impermeable barrier.
- **Add organic soil amendments.**

- **Wash soil particles** off all food thoroughly before eating. The joy of yanking a carrot up and rubbing it against your shirt before biting it has to be left behind when heavy metals are suspected. Root crops and tuberous crops such as potatoes may have the highest lead or arsenic concentrations. Wash and peel all crops before cooking.
- **Grow ornamentals** instead of food in areas that might carry heavy metals, such as the landscape beds around my 1904 home.
- **Keep children from playing** on bare soil. Plant turfgrass or ground covers. Fence off seriously contaminated areas.
- **When working in the garden**, don't eat, drink or smoke.
- **Wear a dust mask** if the area is extremely dusty. Keep soil moist to avoid inhaling dust.
- **Wash off tools** and store them outside.
- **Remove shoes** before entering the house.
- **Store garden clothing outside**, and wash it separately from other household laundry.
- **Have soil tested** if you suspect the possible presence of heavy metal. For a list of soil testing labs, check the WSU site: css.wsu.edu/Soil_Testing_Labs.htm.

For more information, read "Gardening on Lead and Arsenic Contaminated Soils," by Frank Peryea, EB 1884, Washington State University, 1999. It's available online from cru.cahe.wsu.edu/CEPublications/eb1884/eb1884.pdf. To learn more about the arsenic situation in Western Washington, go to www.metrokc.gov/health/tsp/arsenic.htm.

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